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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/298,926   | 04/26/1999  | HELMUT REMBOLD       | R.33554             | 2590             |
| 2119   | 7590        | 07/20/2004           | EXAMINER            |                  |
| RONALD E. GREIGG<br>GREIGG & GREIGG P.L.L.C.<br>1423 POWHATAN STREET, UNIT ONE<br>ALEXANDRIA, VA 22314 |             |                      | MILLER, CARL STUART |                  |
|  |             | ART UNIT             | PAPER NUMBER        |                  |
|  |             | 3747                 |                     |                  |

DATE MAILED: 07/20/2004  
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Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |
|------------------------------|------------------------|---------------------|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |
|                              | 09/298,926             | REMBOLD ET AL.      |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |
|                              | Carl S. Miller         | 3747                |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 12 March 2004.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-13 and 15-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1-13 and 15-26 is/are allowed.
- 6) Claim(s) 27-29 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 27.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida in view of Mathis, Fujino and Yoshiume.

Ishida, Mathis and Fujino apply as per the rejection of claim 1 in the previous office action.

Yoshiume teaches an electric low-pressure pump that varies output to a fuel rail by increasing flow at starting and considers fuel temperatures to add fuel flow at high temperatures (low viscosity).

It would have been obvious to modify Ishida by Mathis and Fujino as previously noted and to vary the low pressure pump flow as taught by Yoshiume because Yoshiume had recognized the ability of electric pumps to vary flow in response to the applicant's starting and temperature conditions.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida, in view of Mathis, Fujino and Cummins.

Ishida, Mathis and Fujino apply as noted with respect to claims 27 and 28 above and Cummins teaches a variable capacity electric pump which uses a variable resistor feed to change pump speed and pump output. It would have been obvious to modify Ishida by using a variable output electric pump in series with a resistor in place of the

variable output reciprocating pump because both pumps had been used in the art to produce relatively low pressure variable flow to a fuel injector system.

Claims 1-13 and 15-26 are allowed.

Applicant's arguments filed March 12, 2004 have been fully considered but they are not persuasive. In particular, the examiner has carefully reviewed applicant's comments but cannot agree with his analysis of Ishida (Ishihara in applicant's comments). While it is true that the pump (52) is the first pump in the system between the fuel tank and the injectors, the claims merely require a first pump and a second pump. The first pump must "delivery fuel from the fuel tank into a fuel line connection", but there is no requirement that the fuel reach this first pump without coming from another pump (i.e. pump 52). The Ishida pump (46) is a first pump which delivers fuel to a second pump (100) and the fact that the system has a total of 3 pumps does not change this fact. Applicant's analysis of the pump of Mathis is also correct, but Mathis has been applied to show the engine driven mechanical second pump and not the variable capacity first pump. Thus, applicant's recognition of the fact that the second pump is fed variable flow only via a variable throttle does not lessen the teachings of Ishida.

Finally, claims 1 and 26 have been allowed because they include flow controls which alter flow from the variable capacity pump in ways not shown by the prior art. As noted earlier in the prosecution, DE ('885) does show the series control, but the relief is on a constant output pump, not a variable output pump. Hence, claim 26 does define the invention over the art of record.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Carl Miller at telephone number 308-2653.

Miller/DI



Carl S. Miller  
Primary Examiner

June 3, 2004